# Engaging Communities to Advance Environmental Health Policy

## PEPH Workshop: Engaging Policy and Decision Makers

**September 7, 2011**
**8:00 a.m. – 5:00 p.m.**

**Sheraton Iowa City Hotel**
**Iowa City, Ia.**

**www.niehs.nih.gov/PEPH**

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
National Institutes of Health

NIEHS
National Institute of Environmental Health Sciences

The University of Iowa
College of Public Health

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## Alaska Collaborative on Health and the Environment (CHE-Alaska)

**Project Leader and Institution**
Pamela Miller, Executive Director, Alaska Community Action on Toxics

**PEPH Program**
ARRA Challenge Grant
Research to Action
Other:

**Brief Project Description**
As part of the Alaska Conference on Health and the Environment (sponsored by ACAT), we established CHE-Alaska in 2006 as a regional partnership of the national Collaborative on Health and the Environment (www.healthandenvironment.org/working_groups/alaska). ACAT sponsors and facilitates CHE-Alaska, with the goal of fostering collaboration and to strengthen dialogue about state and federal chemicals policy issues.

We sponsor regular statewide teleconference seminars and other public events featuring Alaskans and nationally-renowned scientists, health care professionals, and policy experts who are working on a range of environmental health concerns.

We invite participation from health care professionals, researchers, policy makers, health-affected and patient groups, students, educators, advocacy organizations, and any individual concerned about protecting current and future generations from environmental harm. Two to four experts speak at each hour-long seminar that includes questions and answers from those in attendance. All of the speakers volunteer their time for the seminars. We also post MP3 audio recordings of the teleconference seminars on the ACAT web site to make the information available to a wider audience.

**Audiences**
Legislators, Regulators, State, Other: (tribal leaders, health care professionals, health advocates)

**Key Successes/ Outcomes**
ACAT now has a list of 831 people who asked to receive our email announcements about the CHE-Alaska teleconferenced seminars, with thirty to ninety people participating in these monthly partnership calls such as health aides and tribal leaders throughout Alaska (from Barrow to Ketchikan); physicians; nurses; professors and students from university and college campuses in Fairbanks, Anchorage, Juneau, and Sitka; as well as environmental health advocates, health-affected individuals, and conservationists. They join the calls to hear short summaries of cutting-edge research from nationally-renowned scientists and from policy or environmental justice experts about their work on environmental health issues. These calls help strengthen scientific dialogue and collaborative engagement on environmental health issues.

**Key Approaches that led to success**
ACAT conducts the teleconference seminars on a monthly basis and distributes the notices to a list of 831 people via email. They are designed to provide information on new science and policy initiatives as well as engage participants in constructive dialogue. We select topics and speakers of interest to policymakers and request suggestions from participants. The calls are free to participants and allow time

for questions and discussion. We also post the seminar recordings and resource materials on our web site for people who are not able to participate at the times scheduled.

**Obstacles/ Challenges**

It has been a challenge as a small organization to maintain the regular scheduling and logistical arrangements necessary

**Communication Materials**

| Title | Format | Willing to share product? | In the RC? |
|---|---|---|---|
| Recordings of the teleconference seminars and additional resources are posted on our web site at www.akaction.org | Recordings | Yes | No |

**Funding sources for this project**

John Merck Fund
Marisla Fund

## Biomonitoring in Environmental Public Health Policy and Surveillance

**Project Leader and Institution**
Amy D Kyle, University of California-Berkeley

**Partners/ Key Personnel and Institutions**
Commonweal, Bolinas, California
California Environmental Protection Agency
California Department of Public Health
Office of Senate President Pro Tem Don Perata
The Breast Cancer Fund, San Francisco
Ma-at Youth Academy, Richmond

**PEPH Program**
Superfund Research Program

**Brief Project Description**
We conducted successful workshops to translate scientific findings and research on biomonitoring, with supporting materials and presentations geared toward an informed stakeholder audience. This was influential in the development of the California State program.

We identified members of our audience working on legislation to create a biomonitoring program for California and provided technical assistance, reviewed drafts of policy language and materials, and participated in informational hearings and briefings for legislators and staffers to assist the policy community to understand what biomonitoring was about and what it could do. We organized two workshops about biomonitoring addressing topics including use of emerging methods such as biomarkers. (Kyle 2006, 2007) We structured sessions to allow discussion and processing of information among participants, to achieve a greater degree of understanding. We developed case studies to examine how biomonitoring data could be used in public policy settings, how this would differ from how it is used in research, and how ethical principles are different in the "right to know" tradition and the medical tradition. Legislation was passed and signed by the governor. We were asked by the Senate President Pro Tem Perata, bill sponsor, to brief the state's advisory panel about the purposes of the legislation.

We subsequently arranged training for community based organizations to discuss the implications of the legislation for communities, addressing both advantages and potential pitfalls, in cooperation with the Ma'at Youth Academy in Richmond, with additional support from the San Francisco Foundation.

This process allowed us to introduce the concepts of the use of "adducts" or secondary markers of exposure, in biomonitoring programs and to introduce the concept of the potential development of high-throughput technologies based on "omics" methods, through the participation of project investigators M. Smith, Rappaport, and Zhang in the workshops and related discussions.

**Audiences**
Legislators, Regulators, State, Other: non-governmental organizations influential; public health

**Key Successes/ Outcomes**

Passage of legislation authorizing a state biomonitoring program; strengthening knowledge base and connections among research, government, and non-governmental sectors.

**Key Approaches that led to success**

- Timely action and response to issue that was salient to the audience.
- Value added to the discussion by research translation core and by scientific investigators with expertise in the area, leading to ability to make the science relevant in the policy context.
- Creating opportunity for exploration of issues across sectors in a way that is not possible in government forums.
- Pre-existing relationships with the parties.
- Combination of policy expertise and scientific knowledge to contribute to the discussion.

**Obstacles/ Challenges**

- Genuine disagreements about some policy issues.
- Campaigns by vested interests to influence policy discussion and legislation.
- Funding limitations due to state budget situation.

**Communication Materials**

| Title | Format | Willing to share product? | In the RC? |
|---|---|---|---|
| Kyle AD. Proceedings and meeting materials. Use of Data from Biomonitoring in Environmental Health Policy and Surveillance Workshop for government health and environmental protection agencies, non-governmental organizations, and researchers to address critical issues for legislation for a biomonitoring program, July 2006 2006. San Francisco. | Report | | no |
| Kyle AD. Proceedings and meeting materials. Designing State Biomonitoring Programs Workshop for government health and environmental protection agencies, non-governmental organizations, and researchers to address targeting of compounds and populations, policy relevance and applicability, community needs, and related issues, January 2007. Berkeley. | Report | | no |
| Kyle AD. 2007. Remarks to the Organizational Meeting.of Guidance Panel for the Environmental Contaminant Monitoring Program for California. Sacramento. | Presentation | | no |
| Kyle AD, Fuller S. Toxic Exposure in Our Communities: What is the Role of Biomonitoring? 2007. Oakland. | Report | | no |
| Amy D. Kyle, Kevin E. Marsee, Miriam Rotkin-Ellman, Martyn T. Smith, John R. Balmes. Factors Affecting the Use of Biomonitoring Data in public health surveillance and practice. Oral presentation. American Public Health Association Annual Meeting. November 2006. | Presentation | | no |
| Kevin Marsee and Amy D. Kyle. Case Studies: Use of Biomonitoring in Environmental Public Health. | Report (also presentation) | | no |

**Funding sources for this project**

NIEHS Superfund Basic Research Program
San Francisco Foundation
CDC Environmental Public Health Tracking Program

## Children's Environmental Health Policies

**Project Leader and Institution**
Amy D Kyle, University of California Berkeley

**Partners/ Key Personnel and Institutions**
Pediatric Environmental Health Specialty Unit UCSF
California Environmental Protection Agency
US Environmental Protection Agency
California Department of Public Health

**PEPH Program**
Childrens' Environmental Health Centers
Superfund Research Program

**Brief Project Description**
We synthesized information and examined policies to address susceptibility of human populations. We focused on the susceptibility of children. We formed a collaboration with Cal EPA, California Department of Public Health, US EPA Region 9 and with the Pediatric Environmental Health Specialty Unit at UCSF, along with experts from research projects.

Among other activities, we organized a small conference that brought together children's health advocates, risk assessors, academics, and health care professionals to discuss specific ways we could build on gains in science on the significance of early life exposure and children's susceptibility in public policy. This was novel in that we spent our time on the discussion of action alternatives rather than the scientific findings themselves, which were reviewed in advance and in many ways familiar to much of our audience.

The collaboration also led to preparation of a proposal for a research translation and outreach core for a children's environmental health center focused on cancer, with prior SRP investigator Patricia Buffler as PI. RTC leader Kyle was appointed by US EPA Administrator Lisa Jackson to the Children's Health Protection Advisory Committee where she recently led a work group in the development of recommendations for how EPA could address children's health in a chemical screening initiative.
We continue to build on and use this work to the present, working with children's environmental health research centers as well.

**Audiences**
Regulators, State, Other: US EPA HQ, R8, R9, State's environmental health scientists, non-governmental organizations that are active in policy discussions, health professionals

**Key Successes/ Outcomes**
Developed collaboration between the research, health care, and government sectors for work on children's environmental health policy that continues to the present and continues to grow.

**Key Approaches that led to success**
- Building on existing relationships. You have to build a community of interest and engagement and connect to genuine issue networks.
- Meeting a need perceived to be important for the participants.

- Creating a venue that allows for discussion across sectors.
- Strong experience in holding successful meetings and workshop.

**Obstacles/ Challenges**

- This field is at a very early stage of development. Policy venues are not well defined. Probably need for significant legislative action. No consensus as yet on how best to approach this.
- Individuals are at very different stages in the development of knowledge.
- There is a limited practice community. Most of research community has limited knowledge of policy audience or process (with some important exceptions.)

**Communication Materials**

| Title | Format | Willing to share product? | In the RC? |
|---|---|---|---|
| AD Kyle, M Miller, M Marty, S Marmagas, W Victery. *Children's Environmental Health: What Have We Learned and What Do We Need to Do? Meeting Report.* Oakland: University of California Berkeley; 2009. | Report | | no |
| Meeting materials – resources for children's environmental health policy | | | no |

**Funding sources for this project**
NIEHS Superfund Research Program

## City and County of San Francisco Healthy Nail Salon Recognition Program Ordinance

**Project Leader and Institution**
Catherine Porter, Julia Liou, California Healthy Nail Salon Collaborative

**Partners/ Key Personnel and Institutions**
Pam Palitz, Environment California
Lenh Tsan, Asian Law Caucus

**PEPH Program**
ARRA Challenge Grant

**Brief Project Description**
The California Healthy Nail Salon Collaborative (Collaborative) and Environment CA advocated for an ordinance to establish a "Healthy Nail Salon Recognition Program" whereby nail salons in San Francisco that use only those nail polishes (including base and top coats) that have no toluene, dibutyl phthalate, or formaldehyde ("Toxic Trio") or other seriously concerning chemicals would receive recognition for doing so. Products with none of the Toxic Trio are often described as "3-Free." Types of recognition include decals with "Healthy Nail Salon" insignia for shop windows, certificate of accomplishment from the City, and being listed on the City's and organizations' websites as a healthier alternative to other nail salons. Salons could use recognition in their marketing strategies.

**Audiences**
Legislators, City, Other: County

**Key Successes/ Outcomes**
The ordinance was adopted by the Board of Supervisors of the City and County of San Francisco in October 2010.

**Key Approaches that led to success**

- We chose as our "champion" or bill author a member of San Francisco's Board of Supervisors with whom a Collaborative member already had a relationship and who had informally indicated his possible interest in the issue.
- The leadership of this campaign had among them a range of skills and expertise including legal, workers' rights, and environmental and public health.
- The fact that workers and owners as well as researchers and scientists are involved with the Collaborative and weighed in on the rationale for developing a program that recognizes salons that use none of the Toxic Trio added to the feasibility and legitimacy for establishing the program.
- Nail salon workers and owners in San Francisco supported the policy and voiced that support in meetings with the bill's author and at Board meetings.
- We planned and successfully executed a press conference that included a "Healthy Nail Salon Party," where key participants were nail salon technicians who provided manicures to customers. Both technicians and customers extolled the efficacy and health benefits of using less toxic nail products. The event was covered by a range of local and ethnic media, and helped

bring attention to the need for safer cosmetic products and the proposed program in San Francisco.

**Obstacles/ Challenges**

- Limited resources and staff of the agency that is to implement the program.
- Determining if there are other chemicals that are as hazardous or more so than the Toxic Trio.

**Communication Materials**

| Title | Format | Willing to share product? | In the RC? |
|---|---|---|---|
| Factsheets for Consumers | | Possibly | No. |
| Factsheet for policymakers | | Possibly | No. |
| 3-Free Polish Display for Salons | | Possibly | No. |
| Press release, conference program | | Possibly | No. |
| 3-Free Nail Polish Wallet Guide | | Possibly | No. |
| Sample support letter | | Possibly | No. |

**Funding sources for this project**

NIEHS

## Clean Air Study

**Project Leader and Institution**
John Durant, Tufts University

**Partners/ Key Personnel and Institutions**
Ellin Reisner, Somerville Transportation Equity Partnership (STEP)
Emmanuel Owuzu, City of Somerville, MA
Pierre Jean Louis, Mystic Tenants Association
Patricia Calioro VNA of Eastern Massachusetts

**Brief Project Description**
To test the effectiveness of HEPA Filters in removing ultra-fine particulate pollution from highway traffic in public housing apartments that are located from 50 to 200 meters from the highway.

**Audiences**
Legislators, Regulators, City, State, Other: community

**Key Successes/ Outcomes**
This is a pilot study that has had the support and leadership of the City of Somerville to determine whether HEPA air filtration can reduce ultra-fine pollution exposure of residents living very close to highways. There is strong interest in the community, with our local CDC and local elected officials to find solutions for reducing exposure to ultra-fine pollution from highway traffic.

**Key Approaches that led to success**
The study is a CBPR project with strong community participation, including having residents of the housing development working as part-time surveyors.

Based on awareness raised about near roadway pollution and cardiac health effects in our partnership on the CAFEH Study, the City of Somerville approached Tufts University and STEP to carry out this HUD Healthy Homes funded study.

**Obstacles/ Challenges**
- This is a pilot study. The pollution monitoring equipment is very expensive and it is only possible to conduct the research in a small number of homes (20).
- EPA does not regulate ultra-fine particulate (UFP) pollution levels, yet research on the impact of UFP pollution on health demonstrates the negative health impacts to cardiac and pulmonary health.

**Funding sources for this project**
HUD

## Community Assessment of Freeway Exposure and Health

**Project Leader and Institution**
Doug Brugge, Tufts University

**Partners/ Key Personnel and Institutions**
Somerville Transportation Equity Partnership
Committee for Boston Public Housing
Chinese Progressive Association
Chinatown Resident Association

**PEPH Program**
Community Based Participatory Research

**Brief Project Description**
To raise awareness at the local level and among policy makers about the hazards of particulate pollution with a specific emphasis on near highway environments and ultra-fine particulates.

**Audiences**
Legislators, Regulators, City, State, Other: Community

**Key Successes/ Outcomes**
We have engaged a wide range of key stakeholders, including local elected officials and generated interest among many of them. We have also attracted a fair amount of local/regional media coverage of our research and the issue.

**Key Approaches that led to success**
- Being a CBPR project with strong community participation.
- Having a broad based advisory board that meets twice a year.
- Reaching out to and engaging the local/regional media to cover our research.
- Testifying, as invited, at the Massachusetts State House.
- Writing op eds for on-line publications.

**Obstacles/ Challenges**
- The public and policy makers currently have little awareness of particulate matter or near highway environments as a concern.
- Some of the most important policy decisions are being made at the national level, while our connections are more local/regional.

**Funding sources for this project**
NIEHS
NHLBI
HUD
EPA

## Community-Based Participatory Research and Pesticides Exposure Research Projects

**Project Leader and Institution**
Beti Thompson,
Fred Hutchinson Cancer Research Center

**Partners/ Key Personnel and Institutions**
Gloria Coronado
The Center for Health Research, Kaiser Permanente.

Michael Yost
University of Washington School of Public Health, Department of Environmental and Occupational Health Sciences

Zach Guerrette, William C Griffith, and Elaine M. Faustman
University of Washington School of Public Health, Department of Environmental and Occupational Health Sciences, Institute of Risk Analysis and Risk Communication (IRARC)

Ann E. Bradley
Integral Consulting Inc., Annapolis MD

**PEPH Program**
Children's Environmental Health Centers

**Brief Project Description**
The Community-Based Participatory Research and Pesticide Exposure Research Projects focus on identifying the multiple potential pathways that may contribute to pesticide exposure in adults and children living in agricultural communities. The results of these research projects support the hypothesis that the take-home exposure pathway contributes to residential pesticide contamination in agricultural homes where young children are present.

**Audiences**
Regulators, State

**Key Successes/ Outcomes**
Research findings from the NIEHS/EPA Children's Environmental Health Centers have contributed to policy decisions, particularly related to the regulation of pesticides. An excellent example of this input is given by our research on PON1 demonstrating children's increased sensitivity to organophosphate pesticides contributed to EPA's decision to remove chlorpyrifos and diazinon from the retail shelves. In September 2006, Dr. Gloria Coronado from the Center was invited to meet with representative from the headquarters of EPA to present information about the health impacts of azinphos-methyl, a pesticide commonly used in apples and pears. Azinphos-methyl has a toxicity ranking of 1, meaning that it is highly toxic. Dr. Coronado presented findings demonstrating that the take-home pathway is a primary pesticide exposure pathway for children. These findings contributed to EPA's decision to phase-out azinphos-methyl by 2011. Locally, the Pesticide Exposure Pathways Research Project has provided new information on pesticide spray drift. Results from our study were used by the Washington State

Department of Agriculture when it considered a new community notification requirement for pesticide applications.
The CBPR study conducted a community-based intervention project that identified and successfully implemented an intervention reducing the occupational take-home pesticide exposure pathway for families and their children.

**Key Approaches that led to success**

The project used a randomized, controlled community trial to evaluate the effectiveness of the intervention which has the advantage of reaching a large number of people, disseminating messages about behavior across a diverse population and integrating new behavioral practices into existing community structures and organizations. The study design required involvement from the communities to guide and implement intervention activities. We conducted an in-depth qualitative study to understand all aspects of our communities so we could recruit and convene a group that truly represented the community. The resulting Community Advisory Board (CAB) is made up of representatives of all the constituencies involved in pesticides. Because we wished the CAB to be an equal partner in the running of the project, we gave them much decision-making authority, including the hiring of staff, input into the research design, input into all questionnaires and data collection procedures, budget decisions, intervention decisions, and placement on the External Advisory Committee (EAC) for the Center. Due to this widespread involvement and participation of all CAB members in decision-making, we experienced little conflict in our project.
The pathways project studied both local pesticide application factors and human activity factors that contribute to childhood exposure to pesticides. Several modeling efforts were conducted to evaluate the dispersion of material during and after pesticides spray events. Finally, we have evaluated genetic information for two organophosphate compounds, chlorpyrifos and diazinon and we suggested methods for using genetic information in regulations.

**Obstacles/ Challenges**

Challenges included developing trust and transparency with community members, as well as the recruitment and retention of farm workers due to long work hours and frequent relocation. The early in-depth qualitative study was key in understanding the communities in the project area and the involvement of the communities and Community Advisory Board were paramount to the success of the project.

**Communication Materials**

| Title | Format | Willing to share product? | In the RC? |
|---|---|---|---|
| Coronado GD, Vigoren EM, Thompson B, Griffith WC and Faustman EM. Organophosphate pesticide exposure and work in pome fruit: Evidence for the take-home pesticide pathway. Environmental Health Perspectives. 2006; 114(7): 999-1006. | Published journal article | Yes | No |
| Coronado G.D., Vigoren E.M., Griffith W.C., Faustman EM. and Thompson B. Organophosphate Pesticide Exposure Among Pome and Non-Pome Farmworkers: A Subgroup Analysis of a Community Randomized Trial. J Occup Environ Med. 2009: 51(4): 500-509. | Published journal article | Yes | No |
| Coronado, G.D., Griffith, W.C., Vigoren, E.M., Faustman, E.M. and Thompson, B. Where's the dust? Characterizing locations of azinphos-methyl residues in house and vehicle dust among farmworkers with young children. J Occup Environ Hyg | Published journal article | Yes | No |

| | | | |
|---|---|---|---|
| 2010: 7(12):<br>663-671. Best Paper Award 2010 from the Indoor Environmental Quality Committee. | | | |
| Ramaprasad, J., M.-Y. Tsai, K. Elgethun, V.R. Hebert, A. Felsot, M.G. Yost, and R.A.<br>Fenske, The Washington aerial spray drift study: Assessment of off-target organophosphorus insecticide atmospheric movement by plant surface volatilization.<br>Atmospheric Environment, 2004. 38(33): p. 5703-5713. | Published journal article | Yes | No |
| Tsai, M., K. Elgethun, J. Ramaprasad, M. Yost, A. Felsot, V. Hebert, and R. Fenske, The<br>Washington aerial spray drift study: Modeling pesticide spray drift deposition from an<br>aerial application. Atmospheric Environment, 2005. 39(33): p. 6194-6203.<br>feql.wsu.edu/pubs/aenv39vh.pdf. | Published journal article | Yes | No |
| Weppner, S., K. Elgethun, C. Lu, V. Hebert, M.G. Yost, and R.A. Fenske, The Washington<br>aerial spray drift study: children's exposure to methamidophos in an agricultural<br>community following fixed-wing aircraft applications. J Expo Sci Environ Epidemiol, 2006.<br>16(5): p. 387-96. | Published journal article | Yes | No |

**Funding sources for this project**

The National Institute of Environmental Health Sciences (NIEHS)
Environmental Protection Agency (EPA)

## Contaminated Sediment Remedies

**Project Leader and Institution**
Eric Suuberg, James Rice - Brown University; Kelly Pennell - formerly Brown University, now UMass Dartmouth

**Partners/ Key Personnel and Institutions**
RI Department of Environmental Management (Terry Gray); EPA

**PEPH Program**
Superfund Research Program

**Brief Project Description**
The goal was to bring together local and national regulators, their staff, researchers, consultants, and site workers to discuss the challenges and technologies associated with contaminated sediments. The intent was to build connections between parties, share the most updated technical information, and increase decision-making capability of regulators and site managers. A project was subsequently initiated between Brown and the EPA to evaluate passive samplers for characterizing the bioavailability of sediment contaminants.

**Audiences**
Regulators, City, State, Other: environmental consultants

**Key Successes/ Outcomes**
- Partnership with RI DEM for 2007 "Contaminated Sediment Remedies Workshop."
- A joint project proposal was written by Brown and EPA to explore the use of passive samplers to characterize bioavailability of contaminants, and this was funded as a supplement by the NIEHS.

**Key Approaches that led to success**
- Stakeholder workshop with a variety of speakers and attendees (local regulators, researchers, and consultants)
- Integration of and partnership with RI DEM, EPA, and local environmental consultants.

**Obstacles/ Challenges**
- Risk assessment of contaminated sediments is site specific.
- Oftentimes, continuing sources contribute to pollution of sediments: This must be considered.
- There exists no default/presumptive management approach for contaminated sediments.
- Long term monitoring is necessary to evaluate remedial implementation and its effectiveness.

**Communication Materials**

| Title | Format | Willing to share product? | In the RC? |
|---|---|---|---|
| Contaminated Sediment Remedies | Workbook | yes | no |

**Funding sources for this project**
NIEHS P42 ES013660

## EH@Home Workshops - Residential environmental health issues and risk reduction strategies

**Project Leader and Institution**
Dave Stone, Outreach Core Director, Environmental Health Sciences Center, Oregon State University; Director, National Pesticide Information Center

**Partners/ Key Personnel and Institutions**
Sandra Uesugi, COEC, EHSC, Oregon State University
Naomi Hirsch, COEC, EHSC, Oregon State University

**PEPH Program**
EHS Core Centers

**Brief Project Description**
EH@Home is a 5-hour professional development workshop from the Oregon State University Environmental Health Sciences Center. EH@Home workshops focus on common environmental health concerns found in residential settings. Four modules were covered: Basics of Environmental Health, Chemicals in the Diet, Indoor Air Quality, and Pesticides and Alternatives to Pest Control. Workshops were designed as professional development for those who work in residential settings or communicate with the public, older adults, families or parents. COEC staff presented the latest research findings on key environmental health issues. After the workshop, participants are able to recognize common problems, identify risk reduction strategies, and know when to use specialists for further assistance. The workshops were free, included lunch, and held in the middle of the day to allow for 2-3 hours of travel for participants. Target audiences included: County health departments, Women, Infants and Children (WIC) staff, Oregon and Washington Department of Environmental Quality, Oregon Health Authority, OSU Extension faculty, school and public health nurses, child and adult daycare operators, home health aides.

**Audiences**
Regulators, City, State, Other: County health departments; occupational nurses, healthy homes associations

**Key Successes/ Outcomes**
In Spring 2010, COEC staff delivered the pilot version of EH@Home professional development workshops in 4 locations: Eugene, Clackamas, Salem, and Portland. A total of 130 participants attended. The 2010 workshop series received an overall evaluation rating of 4.8 out of 5. In Spring 2011, COEC staff delivered an updated version of the EH@Home professional development workshops in 4 locations across Oregon: Corvallis, Portland, Medford and Bend. Again, a total of 130 participants attended. Updates for the 2nd year included the most recent findings on residential environmental health risks and incorporation of an interactive electronic clicker system for increased audience participation throughout the workshop modules. The Bend and Medford workshops were attended by public health professionals from many rural and underserved counties in Oregon. The 2011 workshop series received an overall evaluation rating of 4.85 out of 5.

Across all 8 workshops, participants ranged from hands-on health providers and in-home care health professionals to city, county, and state managers and directors in the environmental and public health.

An additional successful outcome of the diversity of workshop participants was the increased interaction and networking between different agencies at city, county and state levels as well as local non-profit and private organizations who all participate in residential health issues.

**Key Approaches that led to success**

Based on the successes and feedback from the 2010 workshop series, we utilized word-of-mouth recruitment and continued to develop local partnerships with county health departments and the public health branch of the Oregon Health Authority (Oregon state health department). Partnerships on the state and county level greatly enhanced our recruiting strategies and strengthened our local connections throughout Oregon. We utilized feedback and input from partnerships developed in 2010 with city, county and state constituents to further develop our workshop content to better serve our 2011 participants. Leveraging and strengthening these existing partnerships greatly contributed to the high levels of attendance, diversity of participants, and ability to reach those communities most in need of residential environmental health information, particularly underserved rural and urban areas.

See http://ehsc.oregonstate.edu/ehathome

**Obstacles/ Challenges**

We had many requests from other rural and coastal communities requesting workshops in their area, but we were unable to offer more than 4 workshops each year due to limited funds and staff time. The need and desire for these workshops across Oregon is great and requests increase with each year of workshop offering. We also received feedback from our participants that despite the desire and applicability to their programs, they did not have the time and travel funds to send more staff to the workshops.

**Communication Materials**

| Title | Format | Willing to share product? | In the RC? |
|---|---|---|---|
| Workshop modules: | Powerpoint slides | yes | no, but planning to |
| Basics of Environmental Health | ehsc.oregonstate.edu/ehathome | | |
| Indoor Air Quality | | | |
| Chemicals in the Diet | | | |
| Pesticides and Alternatives for Pest Control | | | |

**Funding sources for this project**

NIEHS grant P30 ES000210

## Environmental Reproductive Health Lecture Series

**Project Leader and Institution**
Samantha Englishoe, Organizer, Alaska Community Action on Toxics

**PEPH Program**
ARRA Challenge Grant
Research to Action

**Brief Project Description**
ACAT hosted a series of public lectures featuring nationally renowned speakers, including: Claire Barnett, Executive Director, Healthy Schools Network (November 6, 2010); Stacy Malkan, author of Not Just A Pretty Face: The Ugly Side of the Beauty Industry (February 6-8, 2011); Dr. Sandra Steingraber, scientist and author of several books including Living Downstream: A Scientist's Personal Investigation of Cancer and the Environment (March 13-14, 2011—including the keynote address at the annual Alaska Academy of Family Physicians conference); and Jeanne Rizzo, President and CEO of the Breast Cancer Fund (June 1-3, 2011).

Fact sheets and postcards were distributed at the events to educate and engage the community about the need and opportunity for state and federal chemicals policy reform. Our objective was to provide information necessary for the public to urge policy makers to support TSCA reform.

**Audiences**
Legislators, Regulators, State, Other: (tribal leaders, health care professionals, health advocates)

**Key Successes/ Outcomes**
- We raised the level of awareness and engagement concerning the need for chemicals policy reform among community leaders, health care professionals, and policy makers. The lecture series also strengthened our foundation of education and engagement.
- Approximately 830 people participated in these events (held in Anchorage, Fairbanks, and Homer) and many signed postcards or made phone calls/emails in support of policy actions including: 1) state legislation to phase out PBDEs (deca bill); 2) request to Senator Murkowski to serve as co-sponsor of federal chemicals legislation.
- Additionally, the MS Foundation decided to continue funding the ACAT sponsored lecture series into 2012.

**Key Approaches that led to success**
We were successful in garnering earned media for these events including statewide coverage on Alaska Public Radio Network (news coverage and special programming, Addressing Alaskans), two network television affiliates, and print media (including Anchorage Daily News, Fairbanks Daily News Miner, Homer News). From June 2010 - June 2011 we sent two action alerts on state legislation (one for HB 63 March 2011 hearing and one for HB 63 and SB 27 April hearing) to 546 people. Additionally, we sent two reminders for the HB 63 action alert in March. Each went to 536 people. We sent a TSCA reform alert in April 2011 to 543 people. We sent a triclosan action alert in January 2011 to 587 people.

**Obstacles/ Challenges**
We experienced no major obstacles associated with this activity.

**Communication Materials**

| Title | Format | Willing to share product? | In the RC? |
|---|---|---|---|
| Informational materials are posted on our web site at www.akaction.org. We are glad to share copies of these informational materials, posters and postcards with the PEHP resource center. | | Yes | Not yet |

**Funding sources for this project**

Ms. Foundation for Women
Alaska Run for Women

## Evaluating Rochester's lead law

**Project Leader and Institution**
Katrina Korfmacher, University of Rochester

**Partners/ Key Personnel and Institutions**
City of Rochester
Coalition to Prevent Lead Poisoning
Empire Justice
National Center for Healthy Housing

**PEPH Program**
EHS Core Centers

**Brief Project Description**
Having been involved in the community-led effort to pass Rochester's lead law in 2005, we are continuing to evaluate its implementation and effectiveness. In addition to insuring the law continues to reduce childhood lead poisoning, we are trying to learn lessons that will inform local lead laws in other communities.

**Audiences**
City, Other

**Key Successes/ Outcomes**
Rate of lead poisoning declined for 4 years, with a slight uptick in 2010. We have been working with government and community partners to identify possible changes and policy adjustments that can be made to improve effectiveness - despite shrinking budgets

**Key Approaches that led to success**
- Partnering with public interest lawyers to do in-depth legal analysis
- Obtaining funding for comparative analysis (from Robert Wood Johnson)
- Working with National Center for Healthy Housing

**Obstacles/ Challenges**
- Shrinking budgets by City Inspections and County

**Communication Materials**

| Title | Format | Willing to share product? | In the RC? |
|---|---|---|---|
| Draft paper on first 3-4 years | peer reviewed publication | when published | no |
| Forthcoming comparative analysis | report and web-based case studies | when published | no |

**Funding sources for this project**
Robert Wood Johnson Foundation

# Implementing CDC Guidelines for the Identification and Management of Lead Exposure in Pregnant and Lactating Women

**Project Leader and Institution**
Amy MacDonald, UNC-Chapel Hill COEC Environmental Health Educator; Kathleen Gray, UNC-Chapel Hill COEC Director

**Partners/ Key Personnel and Institutions**
US CDC
Childhood Lead Poisoning Prevention Program, NC Department of Environment and Natural Resources (NCDENR)
Women's Health Branch, Division of Public Health, NC Department of Health and Human Services (NCDHHS)
NC State Laboratory of Public Health

**PEPH Program**
EHS Core Centers

**Brief Project Description**
Develop a plan for NCDENR and the Division of Public Health in NCDHHS to implement CDC guidelines to assess pregnant women statewide for lead exposure and manage subsequent treatment.

**Audiences**
City, State, Other: medical providers

**Key Successes/ Outcomes**
- Workgroup formed, comprised of of key personnel across agencies.
- Pilot study conducted in key counties to test risk assessment questions and educational materials developed for patients, local health departments, and clinical staff.
- Risk assessment activities incorporated into NCDHHS/local health department agreement addendum, with Medicaid reimbursement for services.
- Trainings under development for nurse consultants in the Women's Health Branch.

**Key Approaches that led to success**
Formation of Lead and Pregnancy Work Group, comprised of NC Childhood Lead Poisoning Prevention Program, Women's Health Branch, NC State Laboratory of Public Health and WIC program staff who worked over the course of one year to develop an implementation plan by assigning roles, developing and testing materials, and identifying gaps such as lack of reporting infrastructure.

**Obstacles/ Challenges**
- Challenges identifying the lead agency for guideline implementation.
- Lack of infrastructure for reporting and analyzing data.
- Lack of capacity of State Laboratory to analyze test results. (Private laboratories must be used.)
- Lack of funds to cover testing and case management of uninsured pregnant women.

**Communication Materials**

| Title | Format | Willing to share product? | In the RC? |
|---|---|---|---|
| Are You Pregnant? (English, Spanish) | brochure | yes | no |
| Lead and Pregnancy Risk Assessment Questionnaire (English, Spanish) | form | yes | no |

**Funding sources for this project**
UNC Center for Environmental Health and Susceptibility, NIEHS Grant # P30ES010126
US Centers for Disease Control and Prevention

## Judges Workshop "Gene-Environment Interactions in Health and Disease"

**Project Leader and Institution**
Kathleen M. Vandiver, Director, community outreach and education core, Center for Environmental Health Sciences, MIT, Bldg 56-211, Cambridge, MA 02139

**Partners/ Key Personnel and Institutions**
ASTAR Courts Science Boot Camp
MIT Museum
Broad Institute

**PEPH Program**
EHS Core Centers

**Brief Project Description**
A two day basic science training workshop in environmental health sciences for 27 justices from across the country (many from state supreme courts) will be held on Sept 15 and 16, 2011 at MIT. The ASTAR Director, Franklin Zweig, chose MIT's CEHS outreach program to obtain a hands-on experience for learning environmental health sciences.

**Audiences**
State, Other: State Supreme Court Justices and other Judges

**Key Successes/ Outcomes**
We anticipate that justices will better understand basic cell processes in genetics (such a protein synthesis) and how DNA can be damaged by environmental factors. Justices will learn how DNA repair processes play a key role in cancer. They will also become more familiar with research techniques, such as DNA chips for analyzing genetic information. A sample court case using radiation will be discussed by a panel of scientists and judges to demonstrate how this information can be applied.

**Key Approaches that led to success**
Key approaches that will lead to a successful workshop in this unusual request for a hands-on approach for justices is close collaboration. Scientists, educators, and judges' perspectives have all been involved and this has taken much dialog.

**Obstacles/ Challenges**
Scientists, educators, and judges all have their own language. Listening is important and time for multiple exchanges.

**Communication Materials**

| Title | Format | Willing to share product? | In the RC? |
|---|---|---|---|
| audio recordings lecture and panel | digital audio recordings | some parts maybe | no |

**Funding sources for this project**
Funding obtained from ASTAR Courts.

## Law and Science

**Project Leader and Institution**
Eric Suuberg, James Rice - Brown University; Kelly Pennell - formerly Brown University, now UMass Dartmouth

**Partners/ Key Personnel and Institutions**
Rhode Island Bar Association;
RI Department of Environmental Management (Terry Gray)

**PEPH Program**
Superfund Research Program

**Brief Project Description**
The goal was to bring together lawyers, academics, and regulators for workshops aimed at understanding the science and policy of environmental contaminants and chemical exposures. This information is crucial to lawyers (and others) involved in environmental legal issues, e.g., cases involving chemical exposure, contaminated property transactions, and also vapor intrusion litigation.

**Audiences**
Regulators, City, State, Other: lawyers, scientists

**Key Successes/ Outcomes**
Partnership with the Rhode Island Bar Association for a 2007 "Contaminated Property Transactions" workshop and a 2010 "Environmental Health and Chemical Exposures: Law and Science" seminar. Both sessions were well attended by local regulators and lawyers. The 2007 agenda provided an introduction to environmental issues at contaminated properties, site investigation and remediation case studies, a description of process and forms related to contaminated properties, and considerations regarding vapor intrusion liability and transactions. The 2010 seminar was focused on topics that surround environmental health issues. The speakers addressed current and emerging science related to chemical toxicity, strategies for preparing environmental cases, tips for successfully implementing expert testimony, and processes for finding and screening experts.

**Key Approaches that led to success**
- Participation of multidiscipline audience, i.e., lawyers, scientists, and regulators.
- Partnership with a highly regarded and respected institute (RI Bar Association) that promotes, plans, and advertises such workshops.
- Locally known and respected program chairs, speakers, and attendees (lawyers, scientists, and regulators)
- Approval by the MCLE Commission for 3.5 RICLE credits.

**Obstacles/ Challenges**
- Lawyers are not often formally trained in environmental science or contamination issues. The quality of the work they do depends not only on understanding of policy, but also on comprehension of critical background information.

- Knowing your (mixed) audience and preparing a high-impact workshop that is neither too technical nor too simplistic.

**Communication Materials**

| Title | Format | Willing to share product? | In the RC? |
|---|---|---|---|
| Contaminated Property Transactions | Workbook | yes | no |
| Environmental Health and Chemical Exposures: Law and Science | Workbook and Brochure | yes | no |

**Funding sources for this project**
NIEHS P42 ES013660

## Legislative Briefings/Environmental Health Bulletins

**Project Leader and Institution**
Samantha Englishoe, Organizer, Alaska Community Action on Toxics

**PEPH Program**
ARRA Challenge Grant
Research to Action

**Brief Project Description**
ACAT hosted legislative briefings and delivered health bulletins to present scientific data in Alaska to the public and policymakers to garner support for state and national chemicals policy reform.

After the close of the legislative session for 2010, ACAT conducted monthly briefings for legislative and agency staff at a conference room at the Legislative Information Office in Anchorage under the auspices of Representative Lindsey Holmes. A significant number of legislative staff from the Senate and House attended. We invited participation from agencies, including the Alaska Department of Environmental Conservation, Alaska Epidemiology Unit, and the Alaska office of the federal Agency for Toxic Substances and Disease Registry from the Centers for Disease Control and Prevention.

In the 2011 legislative session, ACAT staff gave a special presentation in Juneau for a Caucus of twenty-five rural Alaska policymakers, emphasizing the particular vulnerability of exposure to PBDEs in rural Alaska from both local and distant sources, as these chemicals have been increasing exponentially in wildlife and in people.

Since 2006, ACAT has been conducting outreach and educational activities to build support for environmental justice policy. ACAT prepares and delivers environmental health bulletins that inform policy makers about toxicants and ways to make policy changes.

**Audiences**
Legislators, Regulators, State

**Key Successes/ Outcomes**
- In April 2011, the Senate Finance Committee heard SB 27, and after a brief introduction and taking public testimony, the committee held the bill for further review. This marked the final hearing for the bill for the 2011 session and its most advanced stage in any Alaska legislative session. The House companion bill, HB 63, finished the session after its second hearing in the House Labor and Commerce Committee. Both bills will be carried over we are hopeful for successful passage during the second half of the legislative session in 2012.
- With urging from ACAT, the state Department of Environmental Conservation supports the legislation, recognizes the need to develop a phase-out plan for persistent bioaccumulative toxics, and is likely to join the Interstate Chemicals Clearinghouse.

**Key Approaches that led to success**
- ACAT advanced the state chemicals policy through engagement of Alaskans, including firefighters, health care professionals, and Alaska Native tribes/tribal organizations including the Alaska Inter-Tribal Council representing most of the 229 federally recognized tribes in Alaska.

- It was the initial goal of establishing policy to eliminate environmental contaminants by a delegation of sixteen Yupik of St. Lawrence Island and the ACAT research team in Washington D.C. that has fostered policy change at the state level as well.
- At the request of the toxics bills' sponsors, ACAT helped arrange for expert oral and written testimony for all of the hearings and provided data about PBDEs. Members of the Alaska Healthy Future Alliance such as the Arc of Anchorage provided testimony.
- We provided a briefing to rural Alaska legislators in Juneau. ACAT sent action alerts to invite our constituents to submit written testimony to the legislative committees. Through our efforts, legislators received significant numbers of postcards, emails, and testimony in hearings.

**Obstacles/ Challenges**

- Industry opposition to flame retardant legislation has been stronger this year than ever before. Paid lobbyists from Citizens for Fire Safety are testifying and meeting with legislators. There are letters of opposition from the American Chemistry Council; Toy Industry Association and the Association of Food, Beverage, and Consumer Products Companies.
- ACAT staff (in a highly competitive process) prompted the members of Alaska Conservation Alliance (ACA) to name the Flame Retardants and Toxic Chemicals bill as one of ACA's three legislative priorities. ACA is an umbrella group of forty member organizations with a combined membership of over 38,000 Alaskans with an active lobbyist through a sister organization: Alaska Conservation Voters (ACV). Working in tandem with ACV, ACAT provides technical information about PBDEs to legislators and other NGOs, and ACV does direct and indirect lobbying to support the PBDE bill. This year the Alaska Youth for Environmental Action (AYEA) also made the PBDE bill a priority for their work.

**Communication Materials**

| Title | Format | Willing to share product? | In the RC? |
|---|---|---|---|
| Materials are posted on our web site at www.akaction.org. We will provide copies of the Environmental Health Bulletins to the PEHP web site. | | Yes | Not yet |

**Funding sources for this project**

John Merck Fund
Groundswell Fund
Tides ECO Initiative

# Management of Former Manufactured Gas Plant (MGP) Facilities

**Project Leader and Institution**
Eric Suuberg, James Rice - Brown University; Kelly Pennell - formerly Brown University, now UMass Dartmouth

**Partners/ Key Personnel and Institutions**
RI Department of Environmental Management (Terry Gray)

**PEPH Program**
Superfund Research Program

**Brief Project Description**
The goal was to provide information necessary for managing environmental investigation and remediation activities at former MGP facilities. MGPs operated during the 19th and early 20th centuries, providing lighting and heating gas (known as town gas) to urban areas. Though MGP operations were replaced by pipeline infrastructure in the mid 20th century, environmental contamination remains at many former MGP locations.

**Audiences**
Regulators, City, State, Other: environmental consultants

**Key Successes/ Outcomes**
Partnership with RI DEM for 2006 "Manufactured Gas Plant Workshop."

**Key Approaches that led to success**
- Stakeholder workshop with a variety of speakers and attendees (local regulators, researchers, and consultants)
- Integration of and partnership with RI DEM and local environmental consultants.

**Obstacles/ Challenges**
- Former MGP sites and their associated contamination are complex.
- Oftentimes, it is difficult to determine site history (i.e., former structures and operations)
- In some cases, no responsible party can be determined.
- In some cases, relatively new, occupied commercial (industrial or office space) and/or residential space exists at former MGP locations.

**Communication Materials**

| Title | Format | Willing to share product? | In the RC? |
|---|---|---|---|
| Manufactured Gas Plant Workshop | Workshop Materials | yes | no |

**Funding sources for this project**
NIEHS P42 ES013660

## Minority Worker Training

**Project Leader and Institution**
Tipawan T-Q Reed, Principal Investigator, OAI, Inc. 180 N. Wabash, Chicago, IL 60601, Tel: 312-528-3500; Fax: 312-528-3501, www.oaiinc.org

**Partners/ Key Personnel and Institutions**
- Andrea Bills, Director, CitySquare, Dallas, TX
- Paulette Detillier, Founder/President, Era Environmental and Safety, Inc., Independence, MO

**PEPH Program**
Worker Education and Training Program

**Brief Project Description**
The goals of the OAI, Inc. Minority Worker Training Program (MWTP) Consortium are to: foster economic self-sufficiency, create sustainable partnerships, promote environmental justice and revitalization in disadvantaged communities, as well as help reinforce occupational health and worker education. The 6-15 week program offers basic academic skills, life skills, safety and health, and numerous licensed and certificated technical skills training in environmental remediation, construction, and related fields. Supportive services, mentoring, case management and post placement follow-up are built into the program. MWTP is offered in Chicago, Dallas, and Kansas City, MO and serves about 80 underserved community residents annually.

**Audiences**
Other: Unemployed/underemployed disadvantaged community residents

**Key Successes/ Outcomes**
- Over the past five program years, OAI's Minority Worker Training Programs have enrolled 742 trainees, 88% of whom completed the program and 76% of those completing the program have been placed in employment directly related to training or in compatible fields.
- The Consortium has developed and implemented a highly successful recruitment/screening process that includes an innovative Try-Out strategy that has been replicated by all of its partners.
- Through intentional building of local partnership and capacity: (1) the Dallas program is now institutionalized and sustainable, and (2) the Kansas City program has been able to leverage in-kind support from a network of supportive community-based and faith-based organizations as well as the City of Kansas City and Independence.

**Key Approaches that led to success**
- Innovative recruitment and screen process
- Spider Plant approach to long-term local partnership and capacity building
- Identification and leveraging of in-kind and additional resources
- Delivery of quality technical training programs and curricula
- Genuine dedication, commitment to and passion for the program by the leadership and staff

**Obstacles/ Challenges**
- Seeking job placement opportunities for program graduates in a poor economy;

- Contending with inadequate evaluation tools and resources for long-term follow-up and tracking;
- Addressing dwindling funding;
- Identifying and leveraging additional resources; and,
- Building partnerships with employers.

**Funding sources for this project**
The National Institute of Environmental Health Sciences (NIEHS) of the National Institute of Health (NIH)
The Lloyd A. Fry Foundation
The McCormick Foundation
IL Department of Commerce and Economic Development
United Way of Metropolitan Dallas
Thompson Family Foundation

# Model Safety and Health Training to Protect Workers and Communities

**Project Leader and Institution**

Tipawan T-Q Reed, Principal Investigator, OAI, Inc. 180 N. Wabash, Chicago, IL 60601, Tel: 312-528-3500; Fax: 312-528-3501, www.oaiinc.org

**Partners/ Key Personnel and Institutions**

- Robert Delaney, Lieutenant, Paramedic, Instructor - Chicago Fire Department. OAI Hazardous Materials Training Coordinator
- Jeff Garris, ret. Fire Chief, Kentucky Division of Fire Prevention. OAI Master Trainer/Field Coordinator for Commonwealth of Kentucky
- Rick Emery, Trainer, Emery Associates, Vernon Hills, IL
- Josefina Mendez, Director of Programs, Mendez Environmental, Kenner, LA
- Thomas Murdock, PhD, ret. Environmental Health & Safety Director for Medtronic. OAI Master Trainer/Field Coordinator, MN

**PEPH Program**

Worker Education and Training Program

**Brief Project Description**

OAI, Inc., Hazardous Waste Worker Training Program (HWWTP) Consortium, funded by the NIEHS since 1995, has provided OSHA health and safety training to thousands of first responders, green collar and hazardous waste workers in 22 states, primarily in the Midwest region. The long-term objective of the program is to provide workers with requisite knowledge and training on how to best protect themselves, their communities and the environment from exposure to hazards and in compliance with OSHA CFR 1910: 120. HWWTP serves about 3,500 workers annually.

**Audiences**

Other: First responders and hazardous waste workers

**Key Successes/ Outcomes**

- Since its inception in 1995, the OAI HWWT Consortium has met or succeeded all of its performance benchmarks in number of trainees served, courses delivered, and instructional hours generated.
- Third Party Evaluation Findings—Tier 1 Student Course Evaluation Immediately Following Course based on 137 courses with 2209 participants completing evaluations from August 1, 2010 to April 30, 2011, demographic analysis shows that trainees were 88.7% male, 78.9% white, a median age of 38.0 years, with 2.0 median years at their present job.
- The course assessment items asked questions regarding the training. All of the items were rated on a 5-point scale from 1 (poor) to 5 (excellent). The overall average rating of courses for which student evaluations were received, was 4.63. Also, the trainees felt more confident (4.41) about working with hazardous materials after completing their course. In addition, they indicated that they would recommend the program to a co-worker (4.15).
- A random sample of 100 comments indicated that 65% of the trainees wrote that the course was excellent or great. In addition, 42% mentioned that what they liked best about the training were the excellent or very good instructors.

- Evaluation Findings—Tier 2 Internet Survey Three Months Following Course Completion. This survey was distributed to and voluntarily completed by 123 individuals who attended OAI training from August 1, 2010 to April 30, 2011. The data are summarized as follows:
- A total of 99.2% found the courses useful and, compared to other classes they had received, 81.0% reported that OAI's training was better, which was nearly a 20% increase from last year's evaluation data. The majority of trainees (87.5%) indicated they used the materials that they received from the training all or some of the time. Also, 89.2% reported that they were able to apply what they learned in the course on the job all or some of the time. The greatest barrier to putting into practice what they learned in training was lack of time (35.3%), followed by lack of equipment (31.1%). Most (70.3%) of the trainees indicated they shared with other workers what they had learned in their courses. In addition, they reported that there were incidents that occurred after their courses (23.7%) where having the OAI training made a difference.

**Key Approaches that led to success**

- Identifying and leveraging additional resources
- Building long-term strategic partnerships and local capacity
- Implementing and replicating a successful train-the-trainer model
- Delivering quality training programs and curricula
- Dedicated, experienced and passionate trainers
- Ongoing evaluation and refinement of training delivery models

**Obstacles/ Challenges**

- Addressing increasing demands for training with dwindling funding
- Identifying and leveraging additional resources to meet these demands
- Overcoming regional, municipal and organizational barriers which prevent expanding training to reach vulnerable and under-served populations

**Communication Materials**

| Title | Format | Willing to share product? | In the RC? |
|---|---|---|---|
| General program information | www.oaiinc.org | N/A | N/A |

**Funding sources for this project**

The National Institute of Environmental Health Sciences (NIEHS) of the National Institute of Health (NIH)

## Pesticide Health and Safety for Farmworkers and Rural Communities

**Project Leader and Institution**
Jeannie Economos, Farmworker Association of Florida

**Partners/ Key Personnel and Institutions**
Emory University
Farmworker Health and Safety Institute
University of Florida

**PEPH Program**
Research to Action

**Brief Project Description**
To increase the literacy of pesticide health and safety among non-English speaking farmworker populations, to increase the knowledge and awareness of health providers related to pesticide exposure symptoms and treatment, and to reduce the risk of toxic exposure of agricultural workers; to bring awareness to the environmental health problems of the former Lake Apopka muck farm workers and to advocate for specialized health care for the community. We have recently submitted public comments to EPA advocating for bilingual pesticide labels; recently submitted public comments to EPA advocating for the reconsideration of registration of methyl iodide; encouraged migrant health clinics to implement occupational history intake forms through health care provider trainings at migrant clinics; advocated to EPA for updated improvements to the Worker Protection Standards for farmworkers; currently working on public comments to EPA to de-register chlorpyrifos for use in agriculture; participated in the EPA fumigant cluster assessment begun in 2007 in support of improved safety precautions; served on the Serving Communities Work Group of the ATSDR National Conversation on Public Health and Toxic Exposures; participated in the year-long NIOSH evaluation process of PPE for agricultural workers to analyze and improve PPE; advocated for the passage of the Right to Know Law in Florida; conducted a community survey of former Lake Apopka farmworkers to identify sources of exposure and health problems experienced by the community; organized conference calls with the Chemical Exposure Surveillance Project in Florida to work for improved identification and reporting of pesticide-related illness; in addition to other work to advocate for alternatives to toxic pesticides and health and safety protections for farmworkers at a state and national level.

**Audiences**
Legislators, Regulators, City, State, Other:  Clinics and health care facilities

**Key Successes/ Outcomes**
Achieved some strengthened restrictions over the national standards to the registration of methyl iodide in Florida and succeeded in achieving EPA's re-evaluation of the MeI registration decision; succeeded in gaining increased regulations and protections in the registration of five key agricultural fumigants, including buffer zones; succeeded in petitioning EPA to open a public comment period on bilingual pesticide labels; as a member of the Serving Communities Work Group of the National Conversation on Public Health and Toxic Exposures, submitted recommendations to ATSDR; some of our recommendations for improved PPE for agricultural pesticide handlers were adopted by the NIOSH PPE analysis process.

**Key Approaches that led to success**

Participating in conference calls, webinars, conferences, meetings, networks and collaborations with stakeholders to bring awareness to the issues and realities facing the farmworker community related to pesticide exposure. Conducted health care provider trainings to advocate for support from health care providers for changes in policies in order to protect farmworkers. Use of the website, email distribution lists, and social networking to raise awareness and to reach out to allies and organizations. Partnering with academics at research institutions to engage in community-based participatory research projects. Organizing and empowering the farmworker community to advocate for change on their own behalf.

**Obstacles/ Challenges**

Major obstacles and challenges were related to the relative imbalance of power between the farmworker community and farmworker organizations, and the agricultural and pesticide industries and the perception that chemical agriculture cannot feasibly convert to a more sustainable agriculture. Other obstacles related to the slowness of bureaucracy in enacting changes to policies.

**Communication Materials**

| Title | Format | Willing to share product? | In the RC? |
|---|---|---|---|
| The Lake Apopka Farmworkers Environmental Health Survey Report | Booklet | yes | no |
| The Know Your Rights booklet | Informational booklet | no | no |
| The Serving Communities Work Group Recommendations Paper | on the National Conversation for Public Health and Toxic Exposure Website | no | no |

**Funding sources for this project**

Environmental Protection Agency Small Grants and CARE programs
CDC/NIOSH Research to Action Grant

## Pregnancy Exposure to Environmental Contaminants (PEEC) Formative Center

**Project Leader and Institution**
Jessica Trowbridge, MPH; Program on Reproductive Health and the Environment, Dept. of ObGyn, University of California San Francisco

**Partners/ Key Personnel and Institutions**
American Congress of Obstetrics and Gynecologists (ACOG)
San Francisco Bay Area Physicians for Social Responsibility

**PEPH Program**
Children's Environmental Health Centers

**Brief Project Description**
Pregnancy Exposures to Environmental Contaminants Formative Center
The Goal of the Program on Reproductive Health and the Environment (PRHE), a program of the University of California San Francisco, and the Pregnancy Exposures to Environmental Contaminants Formative Center is to promote healthier environments for human development, the foundation for future child and adult health, through prevention of harmful exposures to environmental chemicals.

Our aims are to advance understanding of how exposure to environmental chemicals affects early development by integrating epidemiologic and biomonitoring research on sources and exposure to environmental chemicals during pregnancy with basic biological research on how chemical exposures may disrupt early development.

Our related policy goal is to translate the results of research linking the environment to reproductive health outcomes for health care professionals and policy-makers in order to improve clinical care and promote policies that prevent prenatal exposure to harmful chemicals.

To this end, in 2007 PRHE formed and continues to lead the From Advancing Science to Ensuring Prevention (FASTEP) Alliance, a multi-disciplinary group of clinical and scientific experts and advocates in the fields of reproductive, occupational, environmental and pediatric medicine, public health, and toxicology representing academic, governmental and non-governmental organizations.
The goal of the FASTEP Alliance is to secure each and everyone's right to optimal reproductive health by fostering environments that prevent exposure to potential reproductive toxicants and provides the nutritive and social sustenance necessary for healthy pregnancies, children, adults, and future generations. For more information on the FASTEP alliance go to:
http://prhe.ucsf.edu/prhe/clinical/index.html#fastep

**Audiences**
Legislators, Regulators, State, Other: Clinical Practice

**Key Successes/ Outcomes**
Engagement of the clinical voice in key policy arenas:

- PRHE provided scientific/technical support to the American Congress of Obstetricians and Gynecologists (ACOG) on reproductive environmental health policy issues. For example, ACOG

District IX (which includes all California ACOG Fellows) held 2 legislative committee meetings where its physicians were educated about the reproductive health impacts of methyl iodide, PM 2.5, bisphenol A (BPA) and flame retardants. Subsequently, ACOG District IX supported two environmental bills, one on BPA and the other on flame retardants, in the California state legislature- this is the first time that ACOG has supported legislation related to environmental health. PRHE also helped to initiate a meeting in July 2010 between the leadership of ACOG and the USEPA to discuss children's and reproductive environmental health which established a firm basis for future engagement between ACOG and USEPA on environmental health policy.

- PRHE and FASTEP partners San Francisco-Bay Area Physicians for Social Responsibility, Health Care Without Harm and other collaborators published Reproductive Health and The Industrialized Food System: A Point Of Intervention For Health Policy – our paper links the science to policy options related to a healthy food system. The paper was published in the first ever issue of the health policy journal Health Affairs to cover environmental health, See: http://content.healthaffairs.org/content/30/5/888.full.pdf+html?ijkey=t/dv0tDaFeTyY&keytype=ref&siteid=healthaff

- Professional Statements Database
  Professional organizations of physicians have been active in calling for regulatory and other efforts to address exposure to toxic chemicals and many other environmental threats to human health. To help disseminate these efforts PRHE compiled an online database of policy statements from health professional organizations related to environmental health. See: http://www.prhe.ucsf.edu/prhe/pdfs/ProfessionalStatementsDatabase.pdf

**Key Approaches that led to success**

Key to our success was our inter-disciplinary collaborations between clinical and environmental health scientists, governmental, non-governmental and academic partners with a strong focus on building capacity to produce evidence-based guidance in clinical and policy arenas. For example, PRHE is a trusted source of scientific expertise which gave ACOG's leadership confidence in the meaning of the science and the need to address the policies that drive toxic exposures. Another factor was our "peer-to-peer" outreach and education approach. Specifically, PRHE Post-Doctoral Fellow Joanne Perron, MD, as an active member of ACOG region IX (California), spearheaded ACOG District IX's policy efforts. An additional factor was working with local ACOG leadership who in turn championed the issues to the national organization. Interdisciplinary collaboration to translate the science into prevention-oriented policy was also a key to the food policy paper. The paper was produced to support the work of our non-governmental organizational partners who are deeply engaged in community-based practices to change health care institutional food purchasing practices on local and national levels.

**Obstacles/ Challenges**

Knowledge, time and lack of readily accessible clinical resources. With the exception of pediatrics, the emerging evidence on environmental contributors to reproductive health is poorly understood and largely unused by clinicians to prevent harm. The policies that inform how and why patients encounter harmful environmental exposures are most often invisible to clinicians and/or policy is not connected directly to individual health outcomes of their patients. For example, clinicians may not recognize how public policy has contributed to, and could help alleviate, the obesity epidemic. Moreover, the clinical approach is often directed to behavioral change on an individual level, rather than at public policy.

**Communication Materials**

| Title | Format | Willing to share product? | In the RC? |
|---|---|---|---|
| Cuestiones de Salud | Brochure | yes | no |
| Toxic Matters low literacy English (in press) | Brochure | yes | no |
| Reproductive health and the industrialized food system: A point of intervention for health policy | Academic Journal | yes | no |
| Reproductive environmental health, in Current Opinions in ObGyn | Academic Journal | yes | no |
| Chapter in: Praeger Handbook on Envrionmental Health | Book Chapter | Copyrighted can share link | no |
| Professional society statements about environmental health | web link | Yes | no |

**Funding sources for this project**
EPA P0034724
NIH 1R21ES017763-01
Rose Foundation, Passport Foundation
Planned Parenthood Federation of America, New York Community Trust
National Institute for Environmental Health Sciences (NIEHS: ES018135)
Environmental Protection Agency (EPA STAR: RD83467801)

## Pregnancy Exposure to Environmental Contaminants (PEEC) Formative Center

**Project Leader and Institution**
Jessica Trowbridge, MPH; Program on Reproductive Health and the Environment, Dept. of ObGyn, University of California San Francisco

**Partners/ Key Personnel and Institutions**
Navigation Guide Work Group- Clinical and environmental health scientists and representatives of NGOs

**PEPH Program**
Children's Environmental Health Centers

**Brief Project Description**
The Program on Reproductive Health and the Environment- Navigation Guide:
The goal of the Program on Reproductive Health and the Environment (PRHE), a program of the University of California San Francisco, and the Pregnancy Exposures to Environmental Contaminants Formative Center is to promote healthier environments for human development, the foundation for future child and adult health, through prevention of harmful exposures to environmental chemicals.

Our related policy goal is to translate the results of research linking the environment to reproductive health outcomes for health care professionals and policy-makers in order to improve clinical care and promote policies that prevent prenatal exposure to harmful chemicals.

However, the scientific evidence linking environmental exposures to adverse health outcomes has yet to be compiled using systematic methods with the capacity to inform effective healthcare and policy decision-making. The relevant evidence is largely unfamiliar to clinicians, impacted populations and policy makers. There is currently no trusted, ready reference or compendium that provides them with timely, evidence-based advice about exposure to environmental contaminants.

To bridge the gap between clinical and environmental health sciences, in 2009 PRHE undertook an interdisciplinary collaboration to develop a systematic and transparent methodology to evaluate the quality of evidence and strength of recommendations about the relationship between the environment and reproductive health. The result of this collaboration---the Navigation Guide--- was just published in the May 2011 issue of the journal Health Affairs. Application of the Navigation Guide will result in uniform, simple, and transparent summaries that integrate the best practices of evaluation in environmental and clinical health sciences.

**Audiences**
Legislators, Regulators, State, Other:  Clinical Practice

**Key Successes/ Outcomes**
Development of a methodology to bridge the gap between clinical and environmental health sciences:

- PRHE, FASTEP partners and other collaborators from the US and Europe developed and published The Navigation Guide: An Evidence-Based Medicine Methodology to Bridge the Gap Between Clinical And Environmental Health Sciences – the paper describes an innovative new

methodology that integrates the best of evidence based medicine with environmental health to systematically and transparently evaluate the environmental reproductive health evidence. The method can be applied to support decision-making in clinical and policy arenas. You can see a recently published article on the navigation guide here: http://content.healthaffairs.org/content/30/5/931.full.pdf+html?ijkey=z58MCEPW2X49.&keytype=ref&siteid=healthaff

**Key Approaches that led to success**

Key to our success was our inter-disciplinary collaborations between clinical and environmental health scientists, governmental, non-governmental and academic partners with a strong focus on building capacity to produce evidence-based guidance in clinical and policy arenas. For example, American Congress of Obstetricians and Gynecologists (ACOG) District IX leadership (Jeanne Conry) is a co-author of the Navigation Guide.

**Obstacles/ Challenges**

With the exception of pediatrics, the emerging evidence on environmental contributors to reproductive health is poorly understood and largely unused by clinicians to prevent harm. The scientific evidence is voluminous and mostly unfamiliar to practicing clinicians. Unlike pharmaceuticals, there is no trusted, ready reference or compendium to consult in order to provide patients with timely, evidence-based advice about their exposure to environmental contaminants. In addition, the evidence base is viewed as inferior to clinical science because it relies primarily on non-human systems of experimental evidence, i.e., animal data and lacks randomized controlled trials of humans. Hence addressing environmental exposures is far outside the comfort zone and time constraints of most clinicians. The policies that inform how and why patients encounter harmful environmental exposures are most often invisible to clinicians and/or policy is not connected directly to individual health outcomes of their patients. For example, clinicians may not recognize how public policy has contributed to, and could help alleviate, the obesity epidemic. Moreover, the clinical approach is often directed to behavioral change on an individual level, rather than public policy.

**Communication Materials**

| Title | Format | Willing to share product? | In the RC? |
|---|---|---|---|
| An evidence-based medicine methodology to bridge the gap between clinical and environmental health sciences. By Tracey J. Woodruff, Patrice Sutton and The Navigation Guide Work Group. Health Affairs, 30, no.5 (2011):931-937 | Journal Article | yes | no |
| Pulling back the curtain: Improving reviews in environmental health. By Tracey J. Woodruff and Patrice Sutton doi:10.1289/ehp.1002691 | Journal Article | yes | no |

**Funding sources for this project**

EPA P0034724, NIH 1R21ES017763-01
Clarence Heller Foundation, Passport Foundation, the Heinz Endowments
the Fred Gellert Foundation, Rose Foundation, Kaiser Permanente, New York Community Trust
University of California San Francisco Institute for Health Policy Studies
Planned Parenthood Federation of America
NIEHS (ES018135), US Environmental Protection Agency STAR (RD83467801

## PRoTECT PEPH 1

**Project Leader and Institution**
Ingrid Padilla, University of Puerto Rico, Mayaguez

**Partners/ Key Personnel and Institutions**
Akram Alshawabkeh, Northeastern University
Jose Cordero, University of Puerto Rico, Medical Campus

**PEPH Program**
Superfund Research Program

**Brief Project Description**
We have met with the Director of the Drinking Water Office at the Puerto Rico Department of Health in several occasions. This office is in charged of issuing standards for drinking water at the state level, and monitors and enforces compliance. They also mitigate contamination problems related to drinking water sources.

**Audiences**
Regulators

**Key Successes/ Outcomes**
The office is very interested in the outcome of the Center, to intervene if necessary at the regulatory and enforcement level. They are also open to implement new treatment technologies that can be applied to water sources.

**Key Approaches that led to success**
- Contact and present the work and results.
- Coordinate for students and trainees to intern with the office

**Communication Materials**

| Title | Format | Willing to share product? | In the RC? |
|---|---|---|---|
| 1) Puerto Rico Testsite for Exploring Contamination Threats | Brochure, Website | Yes | |

**Funding sources for this project**
NIEHS SRP

## PRoTECT PEPH 1

**Project Leader and Institution**
Ingrid Padilla, University of Puerto Rico, Mayaguez

**Partners/ Key Personnel and Institutions**
Akram Alshawabkeh, Northeastern University
Jose Cordero, University of Puerto Rico, Medical Campus

**PEPH Program**
Superfund Research Program

**Brief Project Description**
We have met with the EPA Administrator of Region 2, Ms Judith A. Enck. During the meeting in December 7, 2011, PRoTECT researchers presented the problem related to potential impact of contamination and pre-term birth, and the results the Center has obtained.

**Audiences**
Regulators

**Key Successes/ Outcomes**
EPA regional administrators lead efforts on improving environmental conditions that may affect public health at the regional and national level. They indeed become can spokespersons that can lead changes toward attaining this goal. During our meeting and presentation, Ms. Enck was impressed with the extent of the problem and the work conducted to reach a solution. She was was extremely receptive. supportive of the work, and opened the communications for proposals on how to tackle the problem.

**Key Approaches that led to success**
- Contact and present the work and results.
- Persistence.

**Communication Materials**

| Title | Format | Willing to share product? | In the RC? |
|---|---|---|---|
| 1) Puerto Rico Testsite for Exploring Contamination Threats | Brochure, Website | Yes | |

**Funding sources for this project**
NIEHS SRP

## PRoTECT PEPH 1

**Project Leader and Institution**
Ingrid Padilla, University of Puerto Rico, Mayaguez

**Partners/ Key Personnel and Institutions**
Akram Alshawabkeh, Northeastern University
Jose Cordero, University of Puerto Rico, Medical Campus

**PEPH Program**
Superfund Research Program

**Brief Project Description**
We have included as part of the Advisory Board of the Center, the Director of the EPA Caribbean Office, Eng. Carl Soderberg. As part of the board he participates in providing guidance on research and activities that will benefit environmental health outcomes for sites impacted by Superfund and Resource Conservation and Recovery Act (RCRA) sites in Puerto Rico and the Caribbean. As part of this activity we also keep him informed and discuss with him the latest results produced by the and how policy (eg. on sampling, remediation, emerging contaminants) may be viable to improve environmental and public health.

**Audiences**
Regulators

**Key Successes/ Outcomes**
The activity with Eng. Soderberg has been very productive as it has opened the doors to form a 2-directional interaction with the agency. This interaction allows researchers to understand the regulatory and legal aspects, as well as the agency to lean about the health impacts and how science can be applied to reach to decision of significant public health impact. Although no decision outcomes have been attained, the doors have been opened. The interaction has also produced a number of contacts within the EPA and other regulatory agencies.

**Key Approaches that led to success**
- Contact and present the work and results.
- Involve the regulators in 2-directional communication.

**Communication Materials**

| Title | Format | Willing to share product? | In the RC? |
|---|---|---|---|
| 1) Puerto Rico Testsite for Exploring Contamination Threats | Brochure, Website | Yes | |

**Funding sources for this project**
NIEHS SRP

## Recommendation to Fish Consumption Advisories

**Project Leader and Institution**
Alison C. Scherer, University of Washington School of Public Health, Department of Environmental and Occupational Health Sciences, Institute of Risk Analysis and Risk Communication (IRARC)

**Partners/ Key Personnel and Institutions**
Lisa R. Younglove, William Griffith, and Elaine M. Faustman
University of Washington School of Public Health, Department of Environmental and Occupational Health Sciences, Institute of Risk Analysis and Risk Communication (IRARC)

Ami Tsuchiya, Tom M. Burbacher, University of Washington School of Public Health,
Department of Environmental and Occupational Health Sciences

Monsivais P, University of Washington School of Public Health, Department of Epidemiology, Center for Public Health Nutrition

**PEPH Program**
Children's Environmental Health Centers
Other: Oceans and Human Health Center

**Brief Project Description**
Consumption of fish is a major source of exposure to many contaminants for humans. Therefore, fish consumption advisories are issued to alert the public about potential threats from consuming certain fish. Generally, fish consumption rates are averaged across the whole population when setting regulations for contaminants in water. Higher consumption rates in certain sub-populations have not been taken into account. In our region sub-populations, such as Native Americans and Asian-Pacific Islanders, have consumption rates that are 10-20 times larger than the general population. Additionally, children's rates are several times greater than adults for their body weight. Moreover, pregnant women constitutes yet another at-risk population. We have conducted research that identified common metrics used to estimate risks and benefits of fish consumption and that identified key impediments that limit integrated public health messages for these at-risk population.

We have provided information to regulators in Washington and Oregon to assist them when issuing fish consumption advisories.

**Audiences**
Regulators, State, Other: Tribal governments

**Key Successes/ Outcomes**
Oregon and Washington regulators have revised levels for contaminants in water based on more detailed information we provided them.

**Key Approaches that led to success**
Providing data on consumption rates in sub-populations and general populations, and applying these to Census data to provide estimates of the number of people ingesting contaminants at higher levels. Additionally, we have reviewed existing fish advisories and identified common metrics used to estimate

risks and benefits of fish consumption as well as key impediments that limit integrated public health messages for these at-risk population.

**Obstacles/ Challenges**

Some information was not readily accessible or useful due to advisory complexity, lack of clarity, and the many Web site links from the National Listing of Fish Advisories that were not working properly.

**Communication Materials**

| Title | Format | Willing to share product? | In the RC? |
|---|---|---|---|
| Scherer AC, Tsuchiya A, Younglove LR, Burbacher TM and Faustman EM. A Comparative Analysis of State Fish Consumption Advisories Targeting Sensitive Populations. Environmental Health Perspectives. 2008; 116(12): 1598-1606. | Published journal article | Yes | No |
| Scherer AC, Tsuchiya A, Younglove LR, Burbacher TM, Faustman EM. Fish consumption advisories: toxicological risk and nutritional benefit messages to sensitive populations. Society of Toxicology Annual Meeting. Seattle, WA. The Toxicologist March 2008; 102:475. | Abstract | Yes | No |
| Scherer AC, Tsuchiya A, Younglove LR, Burbacher TM, Faustman EM. Comparative analysis of fish consumption advisories to pregnant women and women of childbearing age. Teratology Annual Meeting. Omni William Penn, Pittsburgh, PA. June 23 to 28, 2007. Birth Defects Research (Part A) 79(5):407 (May 2007). | Abstract | Yes | No |
| Scherer AC, Tsuchiya A, Monsivais P Griffith WC, Faustman EM, Drewnowksi A. Development of a composite toxicological-nutrient model for pregnant woman consuming seafood. Teratology Annual Meeting. June 2008. Hyatt Regency Monterey, Monterey, CA. Birth Defects Research (Part A). 82(5):374. | Abstract | Yes | No |

**Funding sources for this project**

The National Institute of Environmental Health Sciences (NIEHS)
Environmental Protection Agency (EPA)
National Science Foundation (NSF)

## Reporting on the Science and Impacts of Toxic Chemicals

**Project Leader and Institution**
Kelly Pennell - formerly Brown University, now UMass Dartmouth; Eric Suuberg, James Rice - Brown University; Sunshine Menezes - Metcalf Institute

**Partners/ Key Personnel and Institutions**
Metcalf Institute for Marine & Environmental Reporting (Sunshine Menezes)
RI Department of Environmental Management (Terry Gray)

**PEPH Program**
Superfund Research Program

**Brief Project Description**
The goal was to bring together local, regional, and national journalists who report on the science and impacts of toxic chemicals for a science seminar covering concepts such as laboratory techniques, scientific uncertainty, toxicology, risk assessment, epidemiology, emerging regulatory issues, etc. The overall purpose of the workshop matched Metcalf's mission to promote clear and accurate reporting of environmental issues and to strengthen understanding and working relationships between scientists and journalists.

**Audiences**
Regulators, City, State, Other: environmental consultants, journalists

**Key Successes/ Outcomes**
Partnership with Metcalf Institute for a 2-day, 2010 "Science Seminar for Journalists." Participants visited research labs and discussed case studies. Senior journalists from Milwaukee Sentinel Journal and USA Today participated in panel discussions with scientists about the challenges associated with environmental reporting. Participants reported improved understanding of environmental toxicology (100%), increased confidence to report on environmental toxicology (83%), improved ability to discern quality science from inferior science (91%), improved ability to explain scientific uncertainty (85%), that session information would benefit their reporting (100%), and that the workshop material was presented at an appropriate level (not too technical, but not too simplistic) (100%).

**Key Approaches that led to success**
- Highly interactive workshop that included formal presentations, less formal breakout sessions, working lunches, and panel discussions.
- Participation of both scientists and journalists.
- Partnership with a highly regarded and respected institute (Metcalf) that promotes, plans, and advertises such workshops.
- Well known and respected speakers/attendees (both scientists and journalists)

**Obstacles/ Challenges**
- Delegation of responsibility and, subsequently, cost must be well managed during partnerships with other institutions for high impact, well-attended, and lengthy meetings.
- Knowing your (mixed) audience and preparing a high-impact workshop that is neither too technical nor too simplistic.

**Communication Materials**

| Title | Format | Willing to share product? | In the RC? |
|---|---|---|---|
| "Waiter, there's a phthalate in my soup!" | Workbook | yes | no |

**Funding sources for this project**
NIEHS P42 ES013660

## Sampling for domoic acid in shellfish to prevent amnesic shellfish poisoning

**Project Leader and Institution**
Elaine Faustman
University of Washington School of Public Health, Department of Environmental and Occupational Health Sciences, Institute of Risk Analysis and Risk Communication (IRARC); Clem Furlong, University of Washington, Division of Medical Genetics, Department of Medicine, School of Medicine

**Partners/ Key Personnel and Institutions**
William Griffith, Eric Vigoren, Finn Krogstad, and Alison Scherer
University of Washington School of Public Health, Department of Environmental and Occupational Health Sciences, Institute of Risk Analysis and Risk Communication (IRARC)

E. Virginia Armbrust and Micaela Parker
University of Washington, School of Oceanography, College of the Environment

**PEPH Program**
Children's Environmental Health Centers
Other: Oceans and Human Health Center

**Brief Project Description**
Amnesic shellfish poisoning is a major concern for people who consume recreationally collected shellfish contaminated with domoic acid produced by the algae Pseudo-nitzschia. Washington State Department of Health routinely monitor shellfish for levels of domoic acid on beaches and close them when the levels are too high. In the past, closures have only occurred on Washington's Pacific Coast but within the last decade three closures have also occurred within the Puget Sound. On the coast, the main species harvested is the razor clam which can retain the domoic acid for a year or longer, while in the Sound razor clams are not found and other species are harvested. The species within the Sound can retain domoic acid for much shorter periods of time, about one week. The time between samples for testing shellfish for domoic acid is two weeks. This time interval works well for the coast, where clams retain the domoic acid for a year or longer. However, the two-week time interval for sampling is too long for the Sound, where clams retain domoic acid for about one week. Within the Sound shellfish can eliminate domoic acid rapidly and levels above regulatory limits can be missed during the two week period. Depending upon the conditions the probability of missing high levels can be as high as 60-70%. Our goal is to encourage the department of health to adopt a more effective sampling strategy to more adequately protect human health.

**Audiences**
Regulators, State, Other: Tribal governemnts

**Key Successes/ Outcomes**
We have developed models to select better sampling strategies for monitoring domoic acid in shellfish. In addition we have developed real time monitors to measure domoic acid in seawater as an alternative to measuring domoic acid in shellfish. Real time monitors would provide a more rapid and less labor intensive method for regulating domoic acid contamination. We have included regulators from the

Washington Department of Health and tribal governments as speakers in our forums describing our research on a regular basis.

**Key Approaches that led to success**

Modeling data from multiple sources and publications to provide a more complete description of how different species of shellfish eliminate domoic acid. Also our models provide links between seawater concentrations and shellfish concentrations of domoic acid. Inviting regulators to our research forums provides them with an understanding of our most recent results and provides researchers to understand the complexities faced by regulators in adapting new methods.

**Obstacles/ Challenges**

Providing regulators with sufficient information on new methods to convince their managers to adapt new methods. There may be the need to have different methods in different parts of the state that depend upon the species of shellfish being harvested in the local area.

**Communication Materials**

| Title | Format | Willing to share product? | In the RC? |
|---|---|---|---|
| Stevens, RC , Soelberg, SD , Eberhart, BTL, Spencer, S, Wekell, JC, Chinowsky, TM, Trainer, VL, Furlong, CE Detection of the toxin domoic acid from clam extracts using a portable surface plasmon resonance biosensor HARMFUL ALGAE Volume: 6 Issue: 2 Pages: 166-174 DOI: 10.1016/j.hal.2006.08.001 Published: FEB 2007 | Published journal article | Yes | No |
| Krogstad FTO, Griffith WC, Vigoren EM, Faustman EM. Re-evaluating blue mussel depuration rates in 'Dynamics of the phycotoxin domoic acid: accumulation and excretion in two commercially important bivalves'. Journal of Applied Phycology. 2009: 21:745–746. | Published journal article | Yes | No |
| Judd NL, Griffith WC and Faustman EM. Consideration of cultural and lifestyle factors in defining susceptible populations for environmental disease. Toxicology. 2004; 198(1-3): 121-133. | Published journal article | Yes | No |
| Griffith W.C., Krogstad F.T.O., Vigoren E. and Faustman, E.M. 2010: December. Poster: Linking Ocean Process to Human Health Risks from Domoic Acid in Seafood Using Integrative Bayesian Models Within a Risk Based Framework. Society for Risk Analysis: 2010 Annual Meeting. Salt Lake City, UT. | Abstract | Yes | No |
| Scherer AC, Younglove LR, Griffith WC, Krogstad FTO, Tsuchiya A, Faustman EM: Novel domoic acid risk assessment framework: New considerations for two susceptible populations. Society for Risk Analysis Risk Analysis: The Science and the Art; 2008 Annual Meeting:131. | Abstract | Yes | No |
| Scherer AC, Tsuchiya A, Monsivais P, Griffith WC, Faustman EM, Drewnowski A: Development of a composite toxicological-nutrient profiling model for pregnant women consuming seafood. Birth Defects Research Part a-Clinical and Molecular Teratology 2008;82:374-374. | Abstract | Yes | No |

**Funding sources for this project**
The National Institute of Environmental Health Sciences (NIEHS)
Environmental Protection Agency (EPA)
National Science Foundation (NSF)

## Stockholm Convention Fifth Conference of Parties (COP5) in April 2011. Sixth POPs Review Committee (POPRC6) in October 2010.

**Project Leader and Institution**
Pamela Miller, Executive Director, Alaska Community Action on Toxics; Vi Waghiyi, Program Director, Alaska Community Action on Toxics

**Partners/ Key Personnel and Institutions**
International POPs Elimination Network.

**PEPH Program**
ARRA Challenge Grant
Research to Action

**Brief Project Description**
Since 1999, ACAT has been active at United Nations meetings first to establish an international legally-binding treaty that bans specified POPs worldwide, and then to implement it. ACAT supports the Stockholm Convention as a means to decrease the long-range transport of POPs to the Arctic thereby protecting the health of Alaska Natives. ACAT collaborated with other northern nations to assure that the Preamble of the treaty explicitly expresses concern over the impact of POPs on Arctic peoples and the environment. By convincing officials from the Alaska governor's office to participate in the meetings, ACAT was instrumental in prompting the U.S. State Department to sign this legally-binding treaty. Signed in 2001 by more than 100 nations, it bans twelve deadly chemicals worldwide and offers provisions for adding new POPs to the ban. The treaty has been ratified by 172 nations (although not yet ratified by the U.S.) and is designed to eliminate the world's most toxic and persistent pesticides and other industrial chemicals. To date, a total of twenty-two chemicals have been listed to be phased out globally.

ACAT's Pamela Miller participated in the preparation of inter-sessional technical documents and in the annual meeting of the scientific review committee of the Stockholm Convention on Persistent Organic Pollutants (POPs Review Committee—POPRC) in Geneva from 17-22 October 2010. She participated with a small team of people working within the International POPs Elimination Network (IPEN) and Inuit Circumpolar Council in subcommittees of the POPRC, providing analyses of the latest science about POPs to support delegates in their work to add specified POPs to the phase-out list. ACAT made significant contributions, providing new scientific evidence concerning the effects of endosulfan and other POPs in the Arctic and the likelihood of increasing concentrations as a result of climate warming. Endosulfan, a widely used insecticide, is a developmental and reproductive toxicant that is now ubiquitous in the Arctic.

In preparation for the United Nations meeting of the Stockholm Convention of 172 nations (the Conference of Parties (COP5)) in April 2011, ACAT helped to coordinate the Indigenous Peoples' Global Caucus. Vi Waghiyi, Environmental Health and Justice Program Director (Yupik from St. Lawrence Island) represented the health concerns of Arctic Indigenous peoples as among the most vulnerable and highly exposed people on earth. Vi presented before 800 participants at the opening plenary of the COP and at an educational program for the delegates entitled: The Stockholm Convention and Indigenous Peoples' Human Rights, Community Health and Survival: Challenges and Solutions Ten Years After the POPs

Treaty Adoption (Wednesday April 27). The Caucus included representatives from the Africa region, Latin American region, Pacific region, and the Arctic region.

**Audiences**
Legislators, Other: (delegates to the Stockholm Convention on Persistent Organic Pollutants)

**Key Successes/ Outcomes**
In 2009, the Stockholm Convention Conference of Parties (COP) added nine new POPs for inclusion under the global, legally binding provisions of the treaty. In April 2011, the COP made a significant decision to list endosulfan under Annex A of the Convention with exemptions requested by India, China, and Uganda. ACAT achieved this outcome at the United Nations Conference of Parties in April 2011 in collaboration with the International POPs Elimination Network.

**Key Approaches that led to success**

- The presentation of unassailable scientific evidence has been key to our success in achieving progress on statewide, national, and international policy.
- ACAT collaborated within international networks, alliances and coalitions to work toward ensuring global elimination of the pesticide endosulfan under provisions of the Stockholm Convention on persistent organic pollutants (POPs).
- We presented evidence of the particular vulnerability of northern ecosystems and the Indigenous Peoples who rely on them. The Indigenous Peoples' Caucus made several important interventions and raised the profile of human rights obligations with the COP and Secretariat.
- ACAT also prepared a global GIS map (Titled: Global Phase Out of Endosulfan in Sight—Annex A for Endosulfan) depicting the status of endosulfan use internationally, including the more than 80 countries that have banned endosulfan.

**Obstacles/ Challenges**
Despite especially tough opposition from the chemical industry at the October 2010 POPRC meeting and at the Conference of Parties in April 2011, ACAT and the IPEN (International POPs Elimination Network) team were successful in advancing the committee decision to recommend the listing of endosulfan for global elimination under the legally-binding provisions of Annex A of the Stockholm Convention to the full Conference of Parties.

**Communication Materials**

| Title | Format | Willing to share product? | In the RC? |
|---|---|---|---|
| Materials are available on our web site at www.akactionorg and will be made available to the PEHP Resource Center. | | Yes | Not yet |

**Funding sources for this project**
John Merck Fund
Groundswell Fund
International POPs Elimination Network

## Triage of Complicated Sites

**Project Leader and Institution**
Eric Suuberg, James Rice, Marcella Thompson - Brown University

**Partners/ Key Personnel and Institutions**
Northeast Waste Management Officials' Association (NEWMOA) (Jennifer Griffith);
RI Department of Environmental Management (Terry Gray)

**PEPH Program**
Superfund Research Program

**Brief Project Description**
The goal is to partner with NEWMOA and RI DEM for future programming on the topic of mixed contaminants at waste sites. Both NEWMOA and RI DEM have expressed interest in this topic. The program will address questions such as the following:

- How do waste site cleanup workers approach a complicated Brownfield?
- What takes priority?
- What is handled first?
- Who says that it's being done correctly?
- What are the cost implications?
- Is the single contaminant regulatory/risk assessment approach appropriate?
- Where do the states go for guidance now; academic and/or consultant?
- Can we begin to develop new protocols for complicated sites?

**Audiences**
Regulators, City, State, Other:  non governmental associations (NEWMOA)

**Key Successes/ Outcomes**
Planning Stage

**Key Approaches that led to success**
Response to an issue about which our state agencies stakeholders (i.e., RI DEM) have expressed concern

**Obstacles/ Challenges**
Planning Stage

**Funding sources for this project**
NIEHS  P42 ES013660

## Trichloroethylene (TCE) Contamination in the Sunnyside School District, Tucson, AZ

**Project Leader and Institution**
Marti Lindsey, PhD
Southwest Environmental Health Sciences Center (SWEHSC), College of Pharmacy, University of Arizona

**Partners/ Key Personnel and Institutions**
Tucson Water, Jeff Biggs, Water Administrator
Tucson International Airport Authority (TIAA) Superfund Site, Ignacio Gomez, Unified Community Action Board Co-Chair, Fred Brinker, TIAA
Sunnyside Unified School District, Steve Holmes, High School Asst Superintendent

**PEPH Program**
EHS Core Centers

**Brief Project Description**
For several years the Unified Community Action Board (UCAB) of the Tucson International Airport Authority (TIAA) Superfund Site desired that the Sunnyside School District adopt the curriculum that the SWEHSC Outreach Core developed with the UCAB and Sunnyside teachers with EPA Environmental Education funds, http://coep.pharmacy.arizona.edu/tce/. In the spring of 2009 the School Board met with the UCAB Co-Chair and Dr Lindsey to consider that request. After being informed of the impact of TCE contamination on the health of the community and about the curriculum they agreed to mandate the implementation of the curriculum in the high schools of the district. Since that time there have been annual training meetings for the teachers and several students have joined the UCAB.

**Audiences**
Regulators, City, Other: School District

**Key Successes/ Outcomes**
- Community involvement in the development of the curriculum
- Community leaders and regulators involved in advocating for the adoption of the curriculum
- Leadership recognition of the importance of environmental health problems for the community
- Ongoing relationships with educational, city and community leaders for the SWEHSC
- SWEHSC being sought as a resource for community education by the City Council for the next phase of the clean up

**Key Approaches that led to success**
- Long term involvement with the UCAB by the SWEHSC - 10+ years
- Seeking community input, by UCAB members, to the lessons that were developed
- Developing collaborations with Tucson Water, City Council members, Pima County Department of Environmental Quality and members of the UCAB
- Seeking support from community leaders in advocating for the adoption of the curriculum
- Collaborating with SWEHSC members, school district representatives and responsible parties for inclusion in teacher trainings
- Continuing to be involved and taking advantage of additional outreach opportunities as they have arisen, specifically about 1,4 Dioxane and the need for an additional treatment facility

**Obstacles/ Challenges**

- Time - it was important to establish the SWEHSC continued dedication to the community's problem
- Finances - it was necessary to obtain the EE grant and to therefore obtain matching funds from Tucson Water and representatives from other responsible parties
- Getting School Board support - as teachers and administrators did not want to implement the curriculum without that support
- Working with in the confines of the school system

**Communication Materials**

| Title | Format | Willing to share product? | In the RC? |
|---|---|---|---|
| Curriculum | Online & Print | yes | yes |
| Symposium for Teachers / Community members | Agenda | yes | no |

**Funding sources for this project**

Lindsey, EPA Environmental Education grant #NE969435010, entitled TCE Contamination and Cleanup Cur

## Vapor Intrusion Assessment and Mitigation

**Project Leader and Institution**
Kelly Pennell - formerly Brown University, now UMass Dartmouth; Eric Suuberg, James Rice - Brown University

**Partners/ Key Personnel and Institutions**
Northeast Waste Management Officials' Association (NEWMOA) (Jennifer Griffith); RI Department of Environmental Management (Terry Gray); EPA

**PEPH Program**
Superfund Research Program

**Brief Project Description**
The goal was to provide guidance and education regarding vapor intrusion (VI) assessment, prediction, and mitigation to local, state, and federal regulators, consultants, facility reps, etc. that handle waste sites. Vapor intrusion (i.e., the migration of subsurface chemical-vapors into indoor air) can negatively affect indoor air quality, building aesthetics, and/or public health.

**Audiences**
Regulators, City, State, Other: consultants, non-governmental associations (NEWMOA)

**Key Successes/ Outcomes**
- Partnership with NEWMOA for 2007 "Vapor Intrusion Mitigation Workshop" and 2008 "Vapor Intrusion in Commercial and Industrial Buildings: Assessment and Mitigation Workshop" with contributions and attendance by RI DEM, MA DEP, EPA, consultants, and industry reps;
- Implementation (by RI DEM) of VI monitoring and control systems in a local community affected by subsurface contaminants;
- Partnership with Boston University and MA DEP on a VI field study to verify VI modelling research and educate a community affected by subsurface vapor contaminants.

**Key Approaches that led to success**
- Stakeholder workshops with a variety of speakers and attendees (local and national regulators, researchers, industry personnel, and consultant case studies);
- VI modelling research and field study investigation supported by supplementary funding;
- Integration of and partnership with a variety of stakeholders, especially RI DEM and NEWMOA

**Obstacles/ Challenges**
- Vapor Intrusion investigations are complex.
- There is limited field data and limited guidance to build policy on.
- Some states have acted by providing guidance, but others have been hesitant to do so.
- State regulators and staff are often prohibited from travelling for workshops (multiple locations required).

**Communication Materials**

| Title | Format | Willing to share product? | In the RC? |
|---|---|---|---|
| Vapor Intrusion Mitigation Workshop | Workbook and Brochure | yes | no |
| Vapor Intrusion in Commercial and Industrial Buildings: Assessment & Mitigation | Workbook and Brochure | yes | no |

**Funding sources for this project**

NIEHS P42 ES013660

## Vapor Intrusion Theory and Practice: A Field Study in the Metro-Boston Area

**Project Leader and Institution**
Kelly Pennell - UMass Dartmouth, formerly Brown University; Eric Suuberg - Brown University; Michael D. McClean and Wendy J. Heiger-Bernays - Boston University School of Public Health

**Partners/ Key Personnel and Institutions**
Brown University, UMass Dartmouth, Boston University School of Public Heath, MA Department of Environmental Protection
(This research is independent of regulatory action already underway at the site.)

**PEPH Program**
Superfund Research Program

**Brief Project Description**
To gain information about vapor intrusion (VI) transport mechanisms and to improve site characterization methods such that VI risks can be better characterized, a field study was conducted in a Metro-Boston neighborhood where VI was known to be occurring and regulatory action was already underway.

**Audiences**
Regulators, City, State, Other: local residents

**Key Successes/ Outcomes**
3 residential properties were recruited to participate in the study. 10 exterior and 3 subslab soil gas sampling locations were installed. 5 quarterly sampling events were included in the study (4 conducted to date) in which soil gas, indoor air, and groundwater were collected and analyzed. Results were periodically communicated to property owners and shared with regulatory agency personnel overseeing site activities. Preliminary results indicate possible correlation between theory and field data, especially with regards to saturated zones, soil moisture content, and geological factors. The research group is working to identify implications of how this research can inform and improve VI characterization methods.

**Key Approaches that led to success**
- Partnership between engineers and public health experts at two local, respected universities.
- Communication with local residents.
- Communication/partnership with regulatory staff who are already managing the site.
- Clear separation of the academic research and regulatory remediation agendas/strategies.

**Obstacles/ Challenges**
- VI is known to be variable across sites.
- Interpretation of field data and assessment of VI risks are widely recognized as challenging.
- Delicacy of the homeowner recruiting process.

**Funding sources for this project**
NIEHS P42 ES013660